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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/817,655

04/02/2004

Paul E. Cook

1268.3003.002

3396

23399 7590 08/03/2009  
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EXAMINER

PHASGE, ARUN S

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

08/03/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/817,655	<b>Applicant(s)</b> COOK ET AL.	
	<b>Examiner</b> Arun S. Phasge	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 2-10 and 12-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 2-10, 12-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Objections***

Claims 2, 3, 9 and 10 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 12 already contains the limitations recited in claims 3, 9 and 10.

### ***Claim Rejections - 35 USC § 112***

Claim 4 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 4 recites that the waste metal plating solution is comprised of copper metal ions, however, claim 12 from which it depends states that the waste metal plating solution is comprised of nickel metal ions. Correction is required.

***Claim Rejections - 35 USC § 103***

Claims 12, 15, 2-4, 6-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim of record in view of Kiyama et al. (Kiyama), U.S. Patent 5,573,652.

Kim discloses a method of recovering metal from waste plating stream and using the recovered metal (see col. 2, line 60 to col. 3, line 7) comprising providing a waste metal plating stream containing metal ions in an aqueous solution; passing the waste metal plating stream containing the metal ions into an electrochemical cell assembly having an inlet for the waste metal plating stream, a plurality of alternating anodes and metallic cathodes porous to the waste metal solution and an exit from the cell; passing the waste metal plating stream through pores of the metallic cathode; passing an electrical current through the anodes and metallic cathodes, thereby depositing a portion of the metal ions onto the cathodes and reducing the amount of the metal ion in the solution from that in the introduced waste metal plating stream (see figure (see figure 3 and col. 3, line 40 to col. 4, line 56); and using the recovered deposited metal on the metallic cathode and the metallic cathode as a source of metal to be deposited on to a substrate in a subsequent metal plating process (see col. 3, line 4-7); wherein a non-conducting diaphragm is used to separate the anodes and cathodes; wherein the waste metal plating solution is comprised of nickel metal ions; and wherein the waste metal plating solution is obtained from an aqueous rinse bath formed as a result of water washing a plated metal part after the deposition of the metal

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plate onto a substrate; and wherein the aqueous solution exiting the electrochemical cell assembly, for removal metal ions from the waste solution, is recycled back to the aqueous rinse bath (see figure 1, wherein the dragout tank would read upon the rinse water, since it rinses the plated metal part after the deposition of the metal plate onto the substrate.).

The Kim patent further discloses the need to remove the same types of metals claimed in claims 2-4 (see col. 1, lines 10-15). The reference further discloses a variety of concentrations before and after treatment (see examples I-IV). To modify this concentration to use other concentrations would have been within the purview of the ordinary artisans.

The Kim patent does not disclose the use of the ceramic separator, however, it teaches the use of non-conductive separators. To select a particular non-conductive separator, such as a ceramic separator would have been obvious to one having ordinary skill in the art given the disclosure of Kim.

The Kim patent, while teaching the removal of the metal by salvaging or the use as the plating anode, fails to disclose the fracturing of the metal and the subsequent cutting of the fractured metal.

Kiyama is cited to the use of a soluble metal anode to produce the metals ions needed for plating or the use of a dissolved metal solution (see col. 1, lines 15-31). The patent further teaches that the control of the size of the solid metal allows the high speed and extremely high efficiency of the metal dissolution (see col. 5, line 5-60).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Kim by the teachings of Kiyama.

One having ordinary skill in the art would have been motivated to do this modification, because the Kiyama patent teaches the controlled size of the metal particle allows the efficient dissolution to produce the metal ions needed for plating. To use the various techniques, such as cutting to arrive at the desire size would have been obvious to the ordinary artisan.

Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Kiyama as applied to claims above, and further in view of Dickson, U.S. Patent 4,911,804.

The Kim patent while removing the cathode and dissolving the metal from the surface of the cathode does not explicitly teach the reintroduction of the cathode without said recovered portion of said metal ions to said electrochemical cell assembly (see col. 3, lines 4-7).

The Dickson patent is cited to show the conventional technique used in the art, wherein the cathode is removed from the cell with the metal deposited thereon removed and the cathode is reintroduced back to the treatment cell (see abstract).

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It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Kim by the teachings of Dickson.

One having ordinary skill in the art would have been motivated to do this modification, because the Dickson patent teaches the reuse of the cathode after the deposited metal is removed from the cathode.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kim and Kiyama as applied to claims above, and further in view of Carlson of record.

The Kim patent fails to disclose the pores/inch limitation, rather it uses porosity to define the cathode (see claim 3).

The Carlson patent discloses the use of sintered metal as the cathode of choice in the removal of metal ions from solutions, which is the same technique used by applicants in preparing the cathode of the instant claims (see col. 3, lines 20-25).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify Kim by the teachings of Carlson.

One having ordinary skill in the art would have been motivated to do this modification, because the Carlson patent teaches the same technique to produced materials used as cathode in the recovery of metals from solutions.

### ***Response to Arguments***

Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arun S. Phasge whose telephone number is (571) 272-1345. The examiner can normally be reached on MONDAY-THURSDAY, 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X. Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



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/Arun S. Phasge/  
Primary Examiner, Art Unit 1795

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